

Claims

1. Nozzle arrangement for extruding doughy substances,
having an inner nozzle (14), which is disposed
coaxially with an axis of rotation (26) and has a
mouth (16) for extruding an inner substance (56), and
at least one outer nozzle (18, 19), which is rotatable
about the axis of rotation (26) and has a mouth
(20; 21) for extruding an outer substance (58, 59),
characterized in that the outer nozzle (18, 19) is
disposed axially offset relative to the inner
nozzle (14).
2. Nozzle arrangement according to claim 1,
characterized in that a plurality of outer nozzles
(18, 19) are disposed in a mutually offset manner on
the periphery of the inner nozzle (14).
3. Nozzle carrier having a nozzle arrangement for
extruding doughy substances, comprising
 - an inner nozzle (14), which is disposed coaxially
with an axis of rotation (26) and has a mouth (16) for
extruding an inner substance (56), and
 - at least one outer nozzle (18, 19), which is
rotatable about the axis of rotation (26) and has a
mouth (20; 21) for extruding an outer substance
(58, 59), wherein
 - the nozzle carrier (10) comprises a stator, in which
an inner feed channel (22), a first (24) and a second
outer feed channel (25) are formed, and
 - and comprises a rotor, which carries the nozzles
(14, 18, 19), is rotatably supported in the stator and
in which a first connection channel (62) is formed,

which connects the inner feed channel (22) to the -
inner nozzle (14), and

- in the stator and/or rotor a first annular
space (28) and in the rotor a second connection
5 channel (63) are formed, which connect the first outer
feed channel (24) to the first outer nozzle (18), and
a second annular space (29) is formed, which connects
the second outer feed channel (25) to the second outer
nozzle (19),

10 characterized in that the outer nozzle (18, 19) is
disposed axially offset relative to the inner
nozzle (14).

4. Nozzle carrier according to claim 3,
15 characterized in that the rotor is sealed off relative
to the stator by means of a first (54), second (55)
and third seal (56), wherein the first seal (54) seals
off the first feed channel (22), the first (54) and
second seal (55) seal off the first annular
20 space (28), and the second (55) and third seal (56)
seal off the second annular space (29).

5. Nozzle carrier according to claim 3 or 4,
25 characterized in that the annular space (28, 29) in
longitudinal section is in sections circular or
elliptical in shape.

6. Nozzle carrier according to claim 3, 4 or 5,
30 characterized in that the first annular space (28) is
formed in the, in flow direction of the substance, top
region by the stator and a first insert (66) of the

rotor and in the bottom region by a second insert (67) of the rotor.

7. Nozzle carrier according to one of claims 3 to 6,
5 characterized in that the second annular space (29) is formed in the outer region by an annular insert (68) disposed in the stator and in the inner region by a/the second insert (67) of the rotor.
- 10 8. Nozzle carrier according to one of claims 3 to 7, characterized in that the first (62,) and second connection channel (63) are formed by a/the first (66) and second insert (67) of the rotor.
- 15 9. Device for extruding doughy substances, characterized in that at least one nozzle carrier according to one of claims 3 to 8 is provided and the rotor is drivable by means of a traction mechanism gearing, in particular a toothed belt drive (36, 38),
20 or a toothed gearing (36, 72, 74) with intersecting axes (26, 70).
10. Device according to claim 9,
25 characterized in that a plurality of nozzle carriers (10) are disposed side by side and drivable by means of a single traction mechanism gearing, in particular a toothed belt drive (36, 38), or a single toothed gearing (36, 72, 74) with intersecting axes (26, 70).
- 30 11. Device according to claim 9 or 10, characterized in that the nozzle carrier(s) (10) is (are) disposed so as to be inclined at an angle α of around 25° to the vertical.